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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,435	02/27/2004	Daigo Kaneko	1021.43549X00	4721

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EXAMINER	
SMITH, TYRONE W	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/787,435	KANEKO ET AL.
	Examiner	Art Unit
	Tyrone W. Smith	2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) was submitted on February 27, 2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-20 rejected under 35 U.S.C. 102(e) as being anticipated by Iwaji et al (6531843).

Regarding Claims 1. Iwaji discloses a driving system of an AC motor, which includes a ripple current generator (Figure 12 item 13) for supplying a ripple current (Figure 12 items Vh, Vhq and Vhd; column 7 lines 60-67, column 8 lines 1-31 and column 16 lines 30-44) to the AC motor; and a magnetic pole position estimator (Figure 12 item 11D) where the magnetic pole position estimator observes at least two current values (Figure 12 items Idc and Iqc) of the ripple current, from the ripple current generator, for both positive and negative sides of the ripple current to estimate the magnetic pole position of the AC motor.

Regarding Claims 10 and 20. Iwaji discloses a driving system of an AC motor, which includes a ripple current generator (Figure 12 item 13) for supplying a ripple current which supplies rectangular waveform voltages with different amplitudes in sequence as a voltage command (Figure 12 items Vh, Vhq and Vhd and Figure 17A-17J; column 7 lines 60-67, column 8 lines 1-31 and column 16 lines 30-44) to the AC motor; and a magnetic pole position estimator (Figure 12 item 11D) where the magnetic pole position estimator observes at least two current values (Figure 12 items Idc and Iqc) of the ripple current, from the ripple current generator, for both positive and negative sides of the ripple current to estimate the magnetic pole position of the AC motor.

Regarding Claims 2, 9, 11 and 19. Iwaji discloses a magnetic pole position estimator (Figure 12 item 11D) obtains a current variation rate, based on at least current values, to estimate the magnetic pole position of the AC motor, based on the current variation rate; estimate the magnetic pole position inside the motor starts operation after performing a fault detection process to check for a fault in the inverter and controller (column 23 lines 45-67 and column 24 lines 1-63).

Regarding Claims 3, 5, 8, 13, 14 and 18. Iwaji discloses a ripple current generator (Figure 12 item 13), which outputs a rectangular waveform voltage as a voltage command; adjusts the amplitude of a voltage as the voltage command so that the current variation rate of the ripple current falls within a predetermined range; a magnetic pole position estimator (Figure 12 item 11D) where the magnetic pole position estimator observes at least two current values (Figure 12 items Idc and Iqc) of the ripple current, from the ripple current generator, for both positive and negative sides of the ripple current to estimate the magnetic pole position of the AC motor Figure 12 items Vh, Vhq and Vhd; abstract, column 7 lines 60-67, column 8 lines 1-31, column 16 lines 30-67, column 23 lines 45-67 and column 24 lines 1-63).

Regarding Claims 4, 6 and 12. Iwaji discloses an inverter performs PWM using a carrier (Figure 12 item 9) and rectangular waveform voltage has a pulse period that is four times or greater even integral times a waveform period of the carrier (abstract; column 8 lines 7-53, column 23 lines 45-67 and column 24 lines 1-63).

Regarding Claims 7 and 17. Iwaji a current amplitude difference calculator (Figure 13 items 7 and 15) for setting of changing the amplitude of the voltage applied (column 16 lines 45-57).

Regarding Claims 15 and 16. Iwaji discloses a driving system of an AC motor, which includes a ripple current generator (Figure 12 item 13) for supplying a ripple current to the AC motor; and a magnetic pole position estimator (Figure 12 item 11D) where the magnetic pole position estimator observes at least two current values (Figure 12 items Idc and Iqc) of the ripple current, from the ripple current generator, for both positive and negative sides of the ripple current to estimate the magnetic pole position of the AC motor. Refer to Figure 12 items Vh, Vhq and Vhd and Figure 17A-17J; column 7 lines 60-67, column 8 lines 1-31 and column 16 lines 30-44.

The applied reference has a common assignee and different inventive identities with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent art related to controlling and/or driving an AC motor is disclosed in the PTO-892.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on 571-272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith
Patent Examiner

Art Unit 2837

MARLON T. FLETCHER
PRIMARY EXAMINER